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# Pesticide Fact Sheet Number 17: Arosurf

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15. Supplementary Notes

16. Abstract (Limit: 200 words)

This document contains up-to-date chemical information, including a summary of the Agency's regulatory position and rationale, on a specific pesticide or group of pesticides. A Fact Sheet is issued after one of the following actions has occurred.

1. Issuance or reissuance of a registration standard,
2. Issuance of each special review document,
3. Registration of a significantly changed use pattern,
4. Registration of a new chemical, or
5. An immediate need for information to resolve controversial issues relating to a specific chemical or use pattern.

17. Document Analysis a. Descriptors

Pesticides, regulations, Chemical Information Fact Sheet, Use Patterns, Science Findings

b. Identifiers/Open-Ended Terms

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Office of Pesticides and Toxic Substances
Office of Pesticide Programs (TS-788C)
Washington, DC 20460

# EPA Pesticide Fact Sheet

Name of Chemical: AROSURF
Reason for Issuance:
Date Issued: Feb. 15, 1984
Fact Sheet Number: 17

## 1. Description of Chemical

Generic name: Poly(oxy-1,2-ethanediyl), alpha-isooctadecyl-omega-hydroxy
Common name: none
Trade name: Arosurf® MSF (Monomolecular Surface Film)
EPA Shaughnessy code: 124601
Chemical abstracts service (CAS) number: 52292-17-8
Year of initial registration: 1984
Pesticide type: Insecticide (mosquito larvacide/pupacide)
Chemical family: ethoxylated fatty alcohol (a nonionic surfacant
U.S. producer: Sherex Chemical Company, Inc.

## 2. Use Patterns and Formulations

Application sites: Semi-permanent or permanent fresh (including potable and irrigation sources) or salt water habitats. Semi-permanent or permanent polluted water habitats.
Types of formulations: liquid
Types/methods of application: ground and air spray
Application rates: 3-5 gal/acre (i.e., 0.2-0.5 gal. a.i./acre
Usual carriers: water

## 3. Science Findings

Summary science findings:

Based on submitted toxicity and fish and wildlife data, Arosurf® demonstrates low toxicity to humans, fish and wildlife. The product is conditionally registered pending the submission of additional fish and wildlife studies identified below.

Chemical characteristics:

Arosurf® MSF is a clear, light amber liquid at 77°F with a melting point of 19-27°F and a flash point of 395°F. It is capable of reducing the surface tension of clean water to 28.2 dyns/cm at 77°F. As a surfactant, it forms a film over the surface of the water to which

it is applied. Its mode of action is considered to be physical rather than chemical in that it reduces the water surface tension resulting in suffocation of the larvae and pupae.

Toxicology Characteristics:

Arosurf® MSF demonstrates low toxicity (Tox Category III) from the following submitted studies:

- Two oral $LD_{50}$ rat studies; 20 gm/kg and 5.0 gm/kg
- Eye irritation, rabbit; not an eye irritant
- Primary eye irritation, rabbit; not an eye irritant
- Acute $LC_{50}$ inhalation, rat; >29 mg/L
- Salmonella microsomal Ames mutagenicity assay; negative
- Primary skin irritation, guinea pig; mild dermal irritant
- Primary skin irritation, rabbit; severe dermal irritant with reversibility of effect
- Primary skin irritation, human patch test; not a skin irritant
- 2-year dog study with a NOEL of 50,000 ppm (1250 mg/kg)
- Two 2-year dog studies with NOEL of 20,000 ppm (1,000 mg/kg)
- 10-month monkey study with a NOEL of 1,000 mg/day

Physiological and Biochemical Behavior Characteristics:

Foliar absorption: N/A
Translocation : N/A
Mechanism of pesticidal action: suffocation (physical)
Metabolism and persistence in plants and animals: N/A

Environmental Characteristics:

Adsorption and leaching in basic soil types: N/A
Microbial breakdown: data show that the chemical is degraded by unaclimated, mixed cultures from natural sources by the shake culture method.
Loss from photodecomposition and/or volatization: Arosurf® MSF is stable to hydrolysis and aqueous photolysis in the absence of photosensitizers.
Bioaccumulation: Similar alcohol ethoxylates degrade under field conditions with the major route of degradation being hydrolysis at the ether linkage and subsequent oxidation of the alkyl chain to lower molecular weight polyethylene glycol-like materials and ultimately $CO_2$ and $H_2O$.
Resultant average persistance: 2 to 10 days at recommended dosage rates.

Ecological Characteristics:

Hazards to fish and wildlife: the following data have been submitted:

- Avian acute oral $LD_{50}$ (mallard duck); >2,000 mg/kg
- Avian dietary $LC_{50}$ (bobwhite quail); >5,000 mg/kg
- Fish acute $LC_{50}$ (bluegill); 290 mg/L: and rainbow trout; 98 mg/L
- Aquatic invertebrate $LC_{50}$ (Daphnia); 1.9 mg/L

Efficacy review results:

Efficacy data not required.

Tolerance Assessments:

An exemption from the requirement of a tolerance for the pesticide in or on fish, shellfish, irrigated crops, meat, milk, poultry and eggs, when used as a mosquito control agent in aquatic areas has been established under 40 CFR 180.1078.

Studies on closely related fatty acid and fatty alcohol ethoxylates having various degrees of ethoxylation supported the clearance of the chemical as an inert ingredient and were also used in support of the exemption as an active ingredient.

4. Summary of Regulatory Position and Rationale

Use classification: General
Use, formulation, manufacturing process or geographical restrictions : None
Unique warning statements required on labeling: None
Summary of risk/benefit review: None conducted

It has been determined that (1) the use of Arosurf® MSF has met the public interest finding as required for the conditional registration of a new chemical under section 3(c)(7)(C) of FIFRA, as amended; and (2) that the use of the pesticide during the period in which the requested data is being generated will not cause any unreasonable adverse effect on the environment.

5. Summary of Major Data Gaps

- One avian dietary study on mallard duck (submitted and currently under review)
- One fish early lifestage study

- One aquatic invertebrate (Mysid shrimp) lifecyle study

These studies are to be submitted no later than February 1, 1987.

6. Contact person at EPA

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